

**IN THE CLAIMS:**

Please **amend claim 18** as follows:

1. (Previously presented) A measurement method comprising the steps of:

arranging an interferometer to form a non-speckle first interference fringe pattern comprising at least ten interference fringes;

recording an image of said first interference fringe pattern;

perturbing an optical path in the interferometer to form a non-speckle second interference fringe pattern comprising at least ten interference fringes; and

combining an image of said second interference fringe pattern with the recorded image of the first interference fringe pattern to produce a further image comprising a moiré fringe pattern arising from a difference or differences between the first and second interference fringe patterns.

2. (Original) A measurement method in accordance with claim 1, wherein said arranging step includes the step of tilting a reflecting surface of the interferometer to increase the number of interference fringes in the first interference fringe pattern.

3. (*Previously presented*) A measurement method in accordance with claim 1 wherein said first interference pattern comprises at least fifty interference fringes.

4. (*Previously presented*) A measurement method in accordance with claim 1 wherein said second interference fringe pattern comprises a larger number of interference fringes than the first interference fringe pattern.

5. (*Previously presented*) A measurement method in accordance with claim 1, wherein the step of perturbing includes the step of inserting a transparent object in the optical path.

6. (*Previously presented*) A measurement method in accordance with claim 1, wherein the step of perturbing includes at least one of the steps of distorting, rotating and translating a reflecting surface in the optical path.

7. (*Previously presented*) A measurement method in accordance with claim 1, wherein the step of perturbing includes at least one of the steps of distorting, rotating and translating a transparent object in the optical path.

8. (*Previously presented*) A measurement method in accordance with claim 1 wherein the step of perturbing includes the step of replacing a reference object with a test object.

9. (*Previously presented*) A measurement method in accordance with claim 1 wherein the step of perturbing includes at least one of the steps of disturbing a gas, and disturbing a gas flow in the optical path.

10. (*Previously presented*) A measurement method in accordance with claim 1, wherein said image of the second interference fringe pattern is a recorded image.

11. (*Previously presented*) A measurement method in accordance with claim 1 wherein at least one of the recorded image of the first interference fringe pattern and the image of the second interference pattern is an image selected from a recorded sequence of images of the interference fringe pattern formed by the interferometer.

12. (*Previously presented*) A measurement method in accordance with claim 1, wherein the recorded image of the first interference fringe pattern and the image of the second interference fringe pattern are digital images.

**13.** (*Original*) A measurement method in accordance with claim **12** wherein the step of combining includes the step of subtracting one of the digital images from the other.

**14.** (*Original*) A measurement method in accordance with claim 13, wherein the step of combining includes the step of converting negative values obtained in the subtracting step to positive values.

**15.** (*Previously presented*) A measurement method in accordance with claim **12**, wherein the digital images are images captured by a CCD camera.

**16.** (*Previously presented*) A measurement method in accordance with claim **1**, further comprising the steps of:

arranging the interferometer to form a third interference fringe pattern;

recording an image of the third interference fringe pattern;

arranging the interferometer to form a fourth interference fringe pattern;

recording an image of the fourth interference fringe pattern, wherein the first, third and fourth interference fringe patterns are phase shifted from each other by predetermined amounts; and

combining the image of the second interference fringe pattern with each of the recorded images of the first, third and fourth

interference fringe patterns to produce respective said further images; and

processing the further images to produce a phase map of the perturbation of the optical path.

**17.** (*Original*) A measurement method in accordance with claim **16** wherein said images of the third and fourth interference fringe patterns are digital images.

**18.** (*Currently amended*) A measurement method comprising the steps of:

arranging an interferometer to form a non-speckle interference fringe pattern comprising at least ten interference fringes;

perturbing an optical path in the interferometer to alter the interference fringe pattern;

combining ~~[[the]]~~ a recorded image with each one of a sequence of images of the interference fringe pattern at respective different times to produce a sequence of respective further images each comprising a moiré fringe pattern arising from a difference between the recorded image and the respective one of the sequence of images.

**19.** (*Original*) A measurement method in accordance with claim **18** wherein the recorded image and the sequential images are digital images.

20. (Original) A measurement method in accordance with claim 19 wherein the step of combining includes the step of subtracting one digital image from another.

21. (Original) A measurement method in accordance with claim 20, further comprising the step of displaying the sequence of respective further images.

22. (Original) A measurement method in accordance with claim 21, wherein the sequence of images of the interference fringe pattern is captured by a camera at a rate, and the sequence of respective further images is displayed at or substantially at said rate.

23. (Previously presented) Measurement apparatus comprising:  
an interferometer arranged to form non-speckle interference fringe patterns comprising at least ten interference fringes;

a camera arranged to capture images of the interference fringe patterns;

an image store arranged to store an image of the interference fringe pattern captured by the camera at a selected time;

an image processor arranged to combine the stored image with an image of the interference fringe pattern captured by the camera at a different time to produce a further image comprising a moiré fringe

pattern arising from a difference or differences between the interference fringe patterns at the selected and said different time.

24. (Original) Measurement apparatus in accordance with claim 23 wherein the interferometer is arranged to form interference fringe patterns comprising at least fifty interference fringes.

25. (Previously presented) Measurement apparatus in accordance with claim 23, wherein said images are digital images.

26. (Original) Measurement apparatus in accordance with claim 25, wherein the image processor is arranged to produce the further image by a process including at least the subtraction of one of the digital images from the other.

27. (Original) Measurement apparatus in accordance with claim 26 wherein the image processor is arranged to produce the further image by a process including the conversion of negative values obtained in the subtraction to positive values.

28. (Previously presented) Measurement apparatus in accordance with claim 23, wherein the interferometer includes means for phase shifting the interference fringe patterns by predetermined amounts, the image store is arranged to store images of the

interference fringe patterns captured by the camera at at least three different selected times, the image processor is arranged to combine each stored image with said image captured at a different time to produce a respective further image comprising a respective moiré fringe pattern, and the image processor is further arranged to process the further images to produce a phase map.

29. (*Previously presented*) Measurement apparatus in accordance with claim 23 wherein the camera is arranged to output a sequence of said captured images, the image processor is arranged to combine the or one of the stored images with each one of the sequence of captured images in turn to produce a respective said further image, the apparatus further comprising at least one of:

a display for displaying the sequence of further images; and  
means for storing the sequence of further images.

30. (*Original*) Measurement apparatus in accordance with claim 29, wherein the camera is arranged to output the sequence of captured, images at a rate, and the apparatus is further arranged to display the sequence of further images at said rate.

31. (*Original*) Measurement apparatus in accordance with claim 23, further comprising an image recorder for recording the images captured by the camera, and an image selector for selecting one of



the recorded images as an image to be stored in the image store or an image to be combined with a stored image.

32. (Original) Measurement apparatus in accordance with claim 23 wherein the camera is a CCD camera.

33. (Original) Measurement apparatus in accordance with claim 23, wherein the interferometer has an aperture of at least 10 cm.